previous experience, indicated a lesion of the lower part of the lumber cord restricted almost to the situation of the sphincters of the bladder and rectum.

The autopsy showed a flattening of the conus and firm adhesion of the dura to the cord at the point of exit of the sacral nerves. In that part of the cord, from the exit of the fifth lumbar nerve to the fifth sacral, the white and gray substance was indistinguishable. The greatest disarrangement of the elements of the cord was seen in the area between the exit of the third and fourth sacral nerves. The columns of Goll showed ascending degeneration. Microscopical examination showed that the part of the cord between the third and fourth sacral nerves had lost completely its configuration. The nerve elements, with the exception of a few solitary fibres to be seen here and there, were entirely absent and were replaced by a mass of glia tissue in which was to be seen a great number of glia cells. In places, this glia tissue is broken into by fissures. The posterior roots were partly degenerated, their sheaths thickened, and the blood vessels, wide and empty, were increased in number. This gliamatosis extended upward as far as the fourth lumbar nerves. Above this, with the exception of the degeneration in Goll's column, the cord was normal. Below the third to fourth sacral nerves the cord was normal. In conclusion, the writer believes that the centres for the bladder, rectum and erection are situated in the sacral segment of the cord between the level of exit of the first and fourth sacral nerves. J. C.

PATHOLOGICAL.

Absence of the Corpus Callosum in the Human Brain.—Hochhaus (Deutsche Zeitschr. f. Nervenheilk. Vol. iv., 1893).

The writer tells us that in the entire literature there are records of but twenty-four cases of this anomaly, including his own. His case was a child, three years old, who died as the result of an accident. Shortly after birth the child had been operated on for atresia ani and later for hæmorrhoids. The bodily development was tolerable, the mental, extremely deficient. During the first two years of life he had nystagmus and inability to sit or walk. At the end of this time the head began to increase in size very rapidly, so that measurements of the head were as follows: Circumference 48 cm., naso-occipital

36½ cm., bi-oral 33½. Physical stigmata, such as convergent squint, pointed ears and undeveloped tragus, broad, flat nose, defective teeth and rachitic chest were very apparent. Puncture of the aracnoid sack at the level of the third lumbar vertebra with the hopes of benefitting the supposed hydracephalus was followed by the escape of 25 cm. of watery fluid.

Post-mortem. The brain showed:

1. General hypertrophy.
2. Total absence of the corpus callosum.
3. Extraordinary richness of convolutions with characteristic fissuration on the median side.
4. Absence of the psalterium, the anterior and median commisure and striæ longitudinales mediales (nervus lancisi).
5. The formation of very wide ventricular cavities, which was most apparent in the fifth ventricle.

The hemispheres were united only by a slight membrane.

The bone of the skull was compact, the great fontanelle 4 cm. wide, 1½ cm. long. The dura was not adherent; the pia extremely vascular; convolutions not flattened, and the sulci very wide. The weight of the brain was 1,350 grm. The lateral ventricles were filled with clear serum and the cerebellum was normal. The brain was increased mainly in height and breadth, very slightly in length.

Microscopical examination of the brain showed a great increase of the neuroglia and the ganglianic cells rich in number and properly formed. In the spinal cord there was marked increase of the interstitial tissue, especially of the anterior and lateral columns, and in some places a lessened number of nerve tubules. The lateral pyramidal tracts were normal. The changes in the gray substance of the cord were quite similar to that found in the gray matter of the brain. The writer remarks that the changes in the cord are not reconcilable with the absence of the corpus callosum, but very readily so with the hypertrophy of the brain.

It is to be remarked that in all the other reported cases of absence of the corpus callosum, the brain was either smaller than normal, or normal in size, and the hypertrophy of the brain in this case is to be considered independent of the anomaly. Etiologically, the writer considers it a congenital defect of development appearing about the fourth month of fœtal life. J. C.